

Recommendations & Performance Measures

Preserving Our Unique Resources

- ⇒ Land Division staff should identify to target audiences with educational information about the harvesting of turtles, specifically wood turtles along the Black River.

Waterway & Wetland Permitting (WWP)

- ⇒ To minimize impacts on fisheries basin-wide, Water Division staff should outline minimum requirements for placement of culverts in streams for Chapter 30 permit process, which regulates the alteration of stream beds.
- ⇒ Gravel pits:
 - Distribute educational materials about Chapter 30 permitting, using additional information from Marathon County's efforts toward regulating gravel pits.
 - Seek LTE support to coordinate information and education efforts for gravel pits by winter of 2002-2003.
- ⇒ Around March 2002, lead an educational workshop, targeting contractors in Clark County, about regulations for and permitting of pond construction.
- ⇒ To help identify non-compliance issues and ensure compliance with Chapter 30 regulations in the stretch of the Black River between Lake Arbutus (Hatfield) and Melrose, WWP staff should tape a video record of shoreline uses and violations and take air photos – ideally in cooperation others taking air photos – of the lower Black River.

Fisheries & Habitat (FH)

- ⇒ FH staff should incorporate mussel survey results from the Black River into the upcoming analysis of fish survey data by the end of 2002.
- ⇒ FH staff should work with local partners – including the school district and sportsman organizations – to complete habitat restoration of 3-5 miles of Pine Creek, a tributary to the Buffalo River. This is a 3-year project to be completed by 2005.
- ⇒ Stream monitoring:
 - FH staff should work on a two-week electro-shocking project on the Black River from North Bend south to the mouth of the river. They will need at least 6 staff members every day for the duration of the project during the spring or summer of 2002.
 - Within 3-5 years, FH staff should also complete a spring electro-shocking survey for walleyes in the Black River and compare the results to those of the survey from the fall of 2001.
 - FH staff should work with WPDES staff to identify changes in point source discharges and use this information to help determine new stream classifications.

- FH staff should assess the upper Black River (from Lake Arbutus north into Taylor County) for the possibility of fisheries and habitat assessment.
- ➡ FH staff should partner with local sportsman organizations to assess Big Creek for future habitat restoration projects and develop a plan of how to restore the area, which was impacted by a major blow down that occurred in the last five years.
- ➡ FH staff should assess pre- and post-dam waterways as opportunities arise within the basin.
- ➡ FH staff should increase the width of existing easements to provide better stream protection offered by the fenced stream corridor for the North Branch of the Trempealeau River.

Real Estate

- ➡ The WDNR should identify important river corridors for protection against anticipated development pressures in the basin.
- ➡ The WDNR should develop a comprehensive land acquisition program that allows purchase of important stream/river resources outside the current “Master Plan” boundaries.
- ➡ The following land acquisitions should be made:
 - Property along the Black River (as outlined in Land Legacy).
 - Boundaries of the Big Creek State Fishery Area should be expanded to include Jenkins Valley, Rathbone, and Dustin Creeks, as well as other crucial tributaries.
 - The remaining property within the Big Creek State Fishery Area.
 - Land within the Sand Creek streambank protection fee area
 - Purchase or easements along Spencer Creek
 - Lands within the Halls Creek State Fishery Area as it becomes available for sale.
 - Halls Creek streambank extending upstream of the Black River State Forest boundary.
 - Land adjacent to Traverse Valley Creek to ensure a buffer between the stream & agricultural uses.
- ➡ Expansion of property boundaries of Vosse Coulee Wildlife Area – protect wetlands, additional stream frontage on Vosse Coulee Creek (Class I trout stream), and Unnamed Creek 25-13 (important to Vosse Coulee Creek fishery).

Protecting Public Health & Promoting Safety

Drinking Water/Groundwater (DG)

- ⇒ Assure proper abandonment of unused/non-complying wells.
- ⇒ WDNR regional staff should continue to encourage communities to develop wellhead protection plans in the Black-Buffalo-Trempealeau River Basin (BBT).
- ⇒ DG staff should prepare maps of nitrate, pesticide, volatile organic compounds, metals, and radioactive detects in the watersheds of the Black River Basin.
- ⇒ DG staff should continue to support inventorying of wells including the use of Wisconsin Unique Well Numbers.
- ⇒ DG staff should observe well drilling activities and inspect public and private wells (on an as needed basis) for both Groundwater and Drinking Water protection.
- ⇒ WDNR regional staff should encourage local communities to plan for future water supplies with consideration for the limited aquifers and problems with water quantity.
- ⇒ DG staff should ensure that public water quality systems in the basin meet federal and state drinking water standards.
- ⇒ DG staff should obtain well compliance where necessary.
- ⇒ The WDNR, in partnership with local units of government, should evaluate nitrate pollution to the groundwater resources in the Brice Prairie area.

Wastewater

- ⇒ Wastewater Treatment Facilities
 - The following communities should complete a facility plan for an upgrade of the existing WWTP.
 - ✓ Mindoro Sanitary District
 - ✓ City of Alma Center
 - WDNR staff should continue to work with the following communities to take the appropriate steps to clean up contaminated wells.
 - ✓ Village of Dorchester
 - ✓ Village of Granton
 - The Village of Curtis should complete an upgrade of the WWTP to handle additional loads from Abbyland Pork.
 - The City of Owen and the Village of Withee should work together to eliminate the inflow and infiltration to their sewer collection system in order to eliminate the need for by-passing raw sewage during rainfall events.
 - Water Division staff should work with the Black River Correctional Center to determine if an upgrade or a new wastewater treatment facility is needed.
 - The Village of Whitehall and Trempealeau County Health Care Center should complete the consolidation of their water systems.
 - The Whitehall WWTP, in recognition of loading from an industrial contributor, should work with local industries to reduce phosphorus loading to achieve compliance with

phosphorus discharge limit.

- The City of Osseo should complete the upgrade to their WWTP.
- The City of Mondovi should reevaluate nutrient loads in the Buffalo River to determine whether an alternative phosphorus effluent discharge limit would continue to be valid in their WPDES discharge permit.
- The City of Independence should complete facility planning of the wastewater treatment system.

⇒ Sewer Systems

- The Town of Onalaska, the Onalaska Lake District, and major industries in the Brice Prairie area should re-examine sewerage all or portions of the Brice Prairie.
- Buffalo City should reconsider sewerage their community to protect the groundwater resource from which they draw their drinking water.
- Fountain City and Campbell SD should reduce infiltration and inflow to the sanitary sewer system to prevent or eliminate future bypassing of raw sewage.

Waterway & Wetland Permitting (WWP)

- ⇒ WWP staff should develop a brochure to educate the public about the alternatives related to dam removal and dredging to maintain an impoundment.
- ⇒ WWP staff should continue on-going safety inspections of dams in the basin at the required rate of once every ten years.
- ⇒ WWP staff should educate the public about the WDNR's dam grant program.
- ⇒ WWP staff should educate communities' Boards of Adjustment about upholding their floodplain development and zoning regulations so that floodplains are maintained, human health and safety are protected, and communities can remain in compliance with FEMA.

Fisheries & Habitat (FH)

- ⇒ By April 2002, FH staff should work with WPDES staff to assess changes in point source discharges to prioritize streams for contaminant monitoring.

Improving Recreational Opportunities

- ⇒ All communities on a stream or river in the basin should critically review and plan their existing and future protection measures and recreational needs for the local waterbody.
- ⇒ All communities on a stream or river in the basin that have completed a plan identifying land acquisition needs along a waterway, should apply to the Urban Rivers Grant Program or the Streambank Acquisition or Easement Grant Program for funding to implement portions of their plan.

Waterway & Wetland Permitting (WWP)

- ⇒ WWP staff should consider the possibilities of requiring reclaimed nonmetallic mine sites to provide public access. For example, one nonmetallic mine north of Greenwood in Clark County has the potential to be duck habitat as well as support bluegill and panfish, and public access would give back to the community.

Watershed Management

- ⇒ A diagnostic study and monitoring program should be implemented for Trow Lake, which has been identified as having major impacts due to nutrient loading, especially phosphorus (P).
- ⇒ The following lakes should be considered high priorities for a lakes planning grant for developing lake management alternatives:
 - Black River Flowage
 - Wazee Lake
 - Oakwood Lake
 - Trow Lake
 - Lake Arbutus
 - Snyder Lake
 - Sportsman Lake
 - Diamond Lake
 - Hulls Lake
 - Richter Lake
 - Clear Lake
 - Esadore Lake
 - Sackett Lake
 - Bugle Lake
 - Crystal Lake
 - Lake Henry
 - Martha Lake
 - Mirror Lake

Fisheries & Habitat (FH)

- ⇒ FH staff should work with partnerships to promote the construction of elderly- and handicapped-accessible fishing piers at a rate of one pier per year beginning with the construction of a pier at Lake Wazee in 2002. Future sites should be identified well

in advance.

- ⇒ FH staff should develop a newsletter or handout – not to exceed 4 pages – describing summer and winter fishing opportunities in the BBT. The document should be created by April 2002 and updated bi-annually.
- ⇒ FH staff should work with Lands/Forestry to ensure that public lands, in particular fishery areas, are properly posted for hunting as well as fishing.

Managing Watersheds to Reduce Waters Quality Impacts

⇒ Cranberries

- New cranberry growing operations should avoid locating on coldwater trout streams. Options include warm water streams, closed systems, and/or upland sites.
- The Department should cooperate with Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP) and the Wisconsin State Cranberry Growers Association (WSCGA) in investigating techniques to eliminate sources of toxicity from commercial cranberry marshes to surface waters. This may require Best Management Practices (BMPs) be developed or refined to ensure that the discharges are not toxic to aquatic organisms.

Waterway & Wetland Permitting (WWP)

⇒ WWP staff should follow millpond dredging at Mirror Lake and Wyman Lake and use information gathered to develop an internal resource about best management practices related to dredging millponds.

⇒ Floodplain and Shoreland Zoning:

- Water Division staff should assist the all counties' zoning administrators in educating and enforcing shoreland zoning around streams and lakes.
- Local municipalities, townships, and counties within the Black River Basin should emphasize the administration and enforcement of floodplain and shoreland zoning.
- Water Division staff should allocate time for educational efforts directed at local residents and county staff regarding the immediate and cumulative effects of poor floodplain and shoreland zoning.

⇒ Impoundments

- DNR water program staff should research the events surrounding the construction of a ponded spring adjacent to Creek 12-6 (West Fork Halls Creek) and take appropriate follow-up actions.
- The Department should fund current and future research projects of which the goals are to determine what impacts impoundments may have on water quality, stream biology, and endangered resources.

⇒ WWP staff should work with the Village of Arcadia to build a stormwater retention basin by the end of 2002 to alleviate flooding in the community and to diversify wildlife through habitat development.

Agricultural Runoff

⇒ By the end of 2002, staff should identify CAFOs (under 1000 animal units) to look at potential water quality impacts related to them (proximity to surface waters, management practices, etc.).

- ⇒ Agricultural runoff staff should educate other WDNR water staff about the 4 prohibitions so that while they are in the field, they are able to assist with identifying CAFOs that are not in compliance with the prohibitions. This training will occur by spring, 2002.
- ⇒ Agricultural runoff staff should develop a strategy for compliance monitoring and inspection on already permitted CAFOs. The strategy should be in place by the end of 2002.
- ⇒ Agricultural runoff staff should build partnerships with the counties to combine the WDNR's expertise in these issues and the counties' funding and other resources to better ensure compliance. This will be an on-going process that should start as soon as possible in 2002.
- ⇒ Agricultural runoff staff should develop a display regarding agricultural runoff, best management practices, and other related subjects. The display should initially be presented at Clark County fair in the summer/fall of 2002. Direct invitations should be sent to members of the local farming community. Future presentations of the display at other county fairs in the area will be dependent upon the success of this initial presentation in Clark County.

Wastewater

- ⇒ Industrial Discharges
 - The Black River ammonia mixing characteristics of the Greenwood and combined Loyal/Grassland Dairy discharges should be studied.
 - The City of Greenwood should continue to work with Land-O-Lakes dairy to reduce phosphorus loading and comply with their discharge limit for phosphorus.
 - WDNR Watershed Management (WT) staff should conduct a biological compliance inspection, including biotic index sampling, of Tappen Coulee Creek near the AMPI-Blair Cheese point source discharge.

Fisheries & Habitat (FH)

- ⇒ Water Division staff should collect representative fish species from the following water bodies to confirm contaminants/mercury concentrations.
 - Water Body – Fish Species to Be Collected*
 - Harkner's Flowage – creel size largemouth bass
 - Robert's (Cranberry) Flowage – creel size northern pike
 - Pigeon Flowage – primary game species, like largemouth bass
 - Black River Flowage – representative game species
 - Town Line Flowage – representative species
 - Lake Arbutus – representative game species
 - Black River (in Popple River Watershed) – channel catfish, walleye, smallmouth bass, and northern pike or musky
 - Diamond Lake – representative game species (other than walleye)

- Richter Lake – largemouth bass
- Sackett Lake – walleye, largemouth bass and other game species
- Black River (downstream of BRF) – channel catfish, walleye, smallmouth bass, and northern pike or musky
- Trempealeau River (@ Trempealeau National Wildlife Refuge) – carp and gamefish
- Trempealeau River (b/w Joe Peitrek County Park & Independence) – carp and gamefish
- ⇒ FH and WT staff should review the accuracy of the stream classification of Meyers Valley Creek near Mid-America Dairymen-Arcadia.
- ⇒ FH staff should conduct temperature monitoring of the South Fork Buffalo River and the Buffalo River downstream of the confluence with the North Fork Buffalo River to assess whether the Osseo dam contributes to water temperature problems in the river.
- ⇒ FH staff should perform a comprehensive stream survey to ascertain existing classification and potential use of Sand Lake Coulee Creek and Halfway Creek as these are under extreme development pressure.

Water Quality

- ⇒ Water Quality related to cranberry growing operations:
 - The Department should continue water quality monitoring of streams and their impoundments (cranberry and recreational) and determine the effects of irrigation on trout streams (BR04).
- ⇒ WT staff should conduct additional water quality testing on the following water bodies to build on existing data:
 - Crystal Lake
 - Lake Henry
 - Martha Lake
- ⇒ Water Division staff should recruit volunteers to do self-help monitoring on the following impoundments where active school districts use the impoundments in their curriculum:
 - Bugle Lake
 - Martha Lake
 - Mirror Lake
 - Lake Marinuka
 - Riecks Lake (in Alma)
- ⇒ Water Division staff should also recruit volunteers to do self-help monitoring on the following lakes:
 - Lake Arbutus
 - Lake Henry
 - Sportsman Lake
 - Trow Lake
 - Wazee Lake
 - Diamond Lake
 - Richter Lake
 - Sackett Lake

- Scoof Lake
- ⇒ Water Division staff should conduct a water quality assessment of this watershed.
- ⇒ Water Division staff should model under what conditions algal growth becomes excessive in Lake Arbutus.
- ⇒ Tree harvesting projects contracted in the Clark County Forest should follow guidelines outlined in the Wisconsin's Forestry Best Management Practices for Water Quality Field Manual.
- ⇒ An interested and capable organization, agency or individual should conduct a study to document any water quality and instream habitat benefits from Conservation Reserve Program (CRP) lands.
- ⇒ WT staff should sample Kind Creek at low flow upstream and downstream of the Mondovi Co-op Equity facility for pesticides, as well as conduct a bioassay test.
- ⇒ Water Division staff should assess the streams in the following watersheds in order to determine a nonpoint source rank:
 - Cawley & Rock Creeks Watershed
 - Lower Trempealeau River Watershed
 - Pigeon Creek Watershed (majority of stream miles)

Stormwater

- ⇒ All basin municipalities with constructed stormwater runoff systems should adopt and enforce stormwater control ordinances that address both water quality and quantity (Traditionally only stormwater volume is documented and/or controlled.). Water quality considerations for receiving waters should be addressed in the design controls and ordinance.
- ⇒ The Town of Onalaska and City of Onalaska should install sedimentation traps in Sand Lake Coulee Creek and form a stormwater utility as a way of properly protecting this creek, the wetlands and habitat it discharges to, and Lake Onalaska.
- ⇒ The WDNR should evaluate and consider adding or designating additional municipalities to be regulated and included in the USEPA Phase II municipal stormwater permitting requirements. These communities would include those adjacent to La Crosse area municipalities who have already been designated in the federal register and who are experiencing development pressures tending to cause stormwater related resource degradation.
- ⇒ The following are basin-wide considerations for construction site erosion:
 - In all basin communities not covered by the Department of Commerce rules, a county or municipal ordinance should adopt and enforce a construction site erosion control ordinance.
 - Basin cities, townships, and counties should adopt a construction site erosion control ordinance for land disturbing activities not covered under administrative rules, such as locally funded road and bridge construction and land disturbing activities of less than five acres.

Discovering Integrated Management & Partnership Opportunities

Waterway & Wetland Permitting (WWP)

- ⇒ WWP staff should continue to streamline workings with counties and other agencies like Land Conservation Departments (LCD), the Fish and Wildlife Service (FWS), and the Natural Resource Conservation Service (NRCS).
- ⇒ Buffalo County and Mondovi should conduct a detailed floodplain study that determines flood profile and should also develop accompanying maps for the Buffalo River.

Watershed Management

- ⇒ The following should be considered high priorities for enrollment in the self-help monitoring program:
 - Diamond Lake
 - Richter Lake
 - Clear Lake
 - Esadore Lake
 - Sackett Lake

Groundwater Contamination Potential

Groundwater Contamination Potential Ranking by Watershed

Each watershed within the Black-Buffalo-Trempealeau River Basin was ranked based on land coverage and groundwater sample analytical results in the WDNR's Groundwater Retrieval Network (GRN) database. The table below lists each watershed score and gives a short description of the land cover and groundwater sample analytical data that determined the score. Groundwater contaminants used for the ranking include nitrate and pesticides, as these are common nonpoint source contaminants. A score of 20 or more is considered medium. At 30 or greater, the score is considered high for groundwater contamination potential. There are six permitted Confined Animal Feeding Operations (CAFO) in the basin. Very few private well samples have been collected and analyzed for nitrates or pesticides in watersheds located in the basin and scores for most watersheds are based only on land cover for this basin.

Table Abbreviations

ES – Groundwater enforcement standard as per NR 140 Wis. Adm. Code. For nitrate, the groundwater ES is 10 ppm.

PAL – Groundwater Preventive Action Limit as per NR 140 Wis. Adm. Code. For nitrate the groundwater PAL is 2 ppm.

CAFO – Confined Animal Feeding Operation that consists of the equivalent of 1000 animal units.

Watershed	Score	Comments
Lower Black River	46.44	The watershed consists of 14% wetland, 37% forest, 2% urban, and 28% agriculture. There is one CAFO in the watershed. Of 50 wells sampled for nitrate, 24% exceeded the ES and 54% exceeded the PAL.
Beaver Creek and Lake Marinuka	27.63	The watershed is 56% forest and 27% agriculture.
Big and Douglas Creeks	27.08	Land cover in the watershed consists of 51% forest and 27% agriculture.
Trout Run and Robinson Creeks	14.27	The watershed is 12% wetland, 58% forest, and 13% agriculture.
Morrison Creek	0.45	The watershed consists of 24% wetland and 64% forest.
Halls Creek	28.97	Land cover consists of 47% forest and 27% agriculture. There is one CAFO in the watershed.
East Fork Black River	5.89	Land cover in the watershed is 32% wetland, 52% forest, and 5% agriculture.
Fivemile and Wedges Creeks	11.97	The watershed is 11% wetland, 65% forest, and 11% agriculture.
O'Neill and Cunningham Creeks	43.82	Land cover in the watershed is 30% forest, 13% grassland, and 43% agriculture.
Cawley and Rock Creeks	57.11	There is one CAFO in the watershed. Land cover consists of 21% forest and 55% agriculture.
Popple River	26.06	Land cover is 19% wetland, 45% forest, and 25% agriculture. There is one CAFO in the watershed.
Trappers and Pine Creeks	23.45	The watershed consists of 18% wetland, 43% forest, 23% agriculture, and 13% grassland.
Black and Little Black Rivers	26.98	Land cover in the watershed consists of 22% wetland, 34% forest, 13% grassland, and 25% agriculture.
Lower Trempealeau River	23.69	The watershed is 12% wetland, 5% open water, 46% forest, and 11% grassland.
Middle Trempealeau River	46.82	Of 242 wells sampled for nitrate, 9.5% exceeded the ES and 40.5% exceeded the PAL. Land cover is 42% forest, 16% grassland, and 36% agriculture.
Elk Creek	34.29	Land cover is 40% forest, 23% grassland, and 29% agriculture.
Pigeon Creek	29.08	The watershed consists of 45% forest, 23% grassland, and 29% agriculture.
Upper Trempealeau River	49.32	There is one CAFO in the watershed. Pesticides were detected in 103 wells. Of 121 wells tested for nitrate, 29% exceeded the ES and 54.5 % exceeded the PAL. Land cover consists of 45% forest, 17% grassland, and 30% agriculture.
Waumandee Creek	27.96	There is one CAFO in the watershed, which consists of 52% forest, 11% grassland, and 26% agriculture.
Lower Buffalo River	32.56	The watershed is 46% forest, 14% grassland, and 32% agriculture.

Table 11 – Groundwater Contamination Potential Ranking by Watershed